

At page 3, after the third full paragraph (*i.e.*, after line 12), please insert the following paragraphs:

--| **BRIEF DESCRIPTION OF THE DRAWING FIGURE**

A4  
The sole drawing figure is a graph depicting *Acinetobacter calcoaceticus* antibody titres for four groups of animals: three control groups known not to have BSE and one group known to have BSE. |--

✓ **IN THE CLAIMS**

Please cancel Claims 1-12, without prejudice on the merits to further prosecution of these claims in one or more continuing applications.

Please insert new Claims 13-55, as follows:

A5  
13. [NEW] A method of diagnosing spongiform encephalopathy and multiple sclerosis in a mammalian subject, including a human subject, the method comprising measuring a bodily fluid of the subject for antibodies capable of binding to a microorganism classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*, and wherein the microorganism contains an antigenic peptide that has sufficient sequence homology with a mammalian myelin peptide such that the antibodies capable of binding to the microorganism are cross-reactive with mammalian myelin and demyelinate nervous tissue, wherein an elevated level of the antibodies in the subject as compared to a corresponding level of the antibodies in known unaffected subjects indicates spongiform encephalopathy or multiple sclerosis in the subject.

14. [NEW] The method of Claim 13, wherein the mammalian subject is a human, and the method is to diagnose multiple sclerosis.

15. [NEW] The method of Claim 13, wherein the mammalian subject is a bovine, and the method is to diagnose bovine spongiform encephalopathy.

16. [NEW] The method of Claim 13, wherein the bodily fluid measured is serum.
17. [NEW] The method of Claim 13, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Acinetobacter*.
18. [NEW] The method of Claim 13, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Agrobacter*.
19. [NEW] The method of Claim 13, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Ruminococcus*.
20. [NEW] The method of Claim 13, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.
21. [NEW] The method of Claim 13, wherein the antibodies are measured using an enzyme-linked immunosorbent assay.
22. [NEW] The method of Claim 21, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*.

23. [NEW] The method of Claim 21, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.

24. [NEW] The method of Claim 21, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole *Acinetobacter calcoaceticus* bacteria.

25. [NEW] The method of Claim 21, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria wherein the bacteria contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

26. [NEW] The method of Claim 13, wherein the antibodies are measured using an enzyme-linked immunosorbent assay that utilizes as a test antigen a polypeptide selected from the group consisting of SEQ. ID. NOS: 1, 3, 4, and 5.

27. [NEW] The method of Claim 13, wherein the microorganism contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

28. [NEW] A method of diagnosing spongiform encephalopathy in a bovine subject, the method comprising measuring serum collected from a bovine subject for antibodies capable of binding to a microorganism classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*, and wherein the microorganism contains an antigenic peptide that has sufficient sequence homology with a mammalian myelin peptide such that the antibodies capable of binding to the microorganism are cross-reactive with mammalian myelin and demyelinate nervous tissue, wherein an elevated level of the antibodies in the subject as compared to a

corresponding level of the antibodies in known unaffected subjects indicates spongiform encephalopathy in the subject.

29. [NEW] The method of Claim 28, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Acinetobacter*.

30. [NEW] The method of Claim 28, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Agrobacter*.

31. [NEW] The method of Claim 28, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Ruminococcus*.

32. [NEW] The method of Claim 28, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.

33. [NEW] The method of Claim 28, wherein the antibodies are measured using an enzyme-linked immunosorbent assay.

34. [NEW] The method of Claim 33, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*.

35. [NEW] The method of Claim 33, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.

36. [NEW] The method of Claim 33, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole *Acinetobacter calcoaceticus* bacteria.

37. [NEW] The method of Claim 33, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria wherein the bacteria contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

38. [NEW] The method of Claim 28, wherein the antibodies are measured using an enzyme-linked immunosorbent assay that utilizes as a test antigen a polypeptide selected from the group consisting of SEQ. ID. NOS: 1, 3, 4, and 5.

39. [NEW] The method of Claim 28, wherein the microorganism contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

40. [NEW] A method of diagnosing multiple sclerosis in a human subject, the method comprising measuring serum collected from a human subject for antibodies capable of binding to a microorganism classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*, and wherein the microorganism contains an antigenic peptide that has sufficient sequence homology with a mammalian myelin peptide such that the antibodies capable of binding to the microorganism are cross-reactive with mammalian myelin and demyelinate nervous tissue, wherein an elevated level of the antibodies in the subject as compared to a corresponding level of the antibodies in known unaffected subjects indicates multiple sclerosis in the subject.

41. [NEW] The method of Claim 40, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Acinetobacter*.

42. [NEW] The method of Claim 40, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Agrobacter*.

43. [NEW] The method of Claim 40, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism classified within the genus *Ruminococcus*.

44. [NEW] The method of Claim 40, wherein the bodily fluid is measured for the presence of antibodies capable of binding to a microorganism selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.

45. [NEW] The method of Claim 40, wherein the antibodies are measured using an enzyme-linked immunosorbent assay.

46. [NEW] The method of Claim 45, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*.

47. [NEW] The method of Claim 45, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria selected from the group consisting of *Acinetobacter calcoaceticus*, *Agrobacter tumefaciens*, and *Ruminococcus albus*.

48. [NEW] The method of Claim 45, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole *Acinetobacter calcoaceticus* bacteria.

49. [NEW] The method of Claim 45, wherein the enzyme-linked immunosorbent assay utilizes as a test antigen whole bacteria wherein the bacteria contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

50. [NEW] The method of Claim 40, wherein the antibodies are measured using an enzyme-linked immunosorbent assay that utilizes as a test antigen a polypeptide selected from the group consisting of SEQ. ID. NOS: 1, 3, 4, and 5.

51. [NEW] The method of Claim 40, wherein the microorganism contains an antigenic peptide comprising an amino acid sequence as shown in SEQ. ID. NOS: 1, 3, 4, and 5.

52. [NEW] A kit for diagnosing spongiform encephalopathy and multiple sclerosis in a mammalian subject, including a human subject, the kit comprising, in combination:

a first vessel containing a microorganism classified within a genus selected from the group consisting of *Acinetobacter*, *Agrobacter*, and *Ruminococcus*; and

instructions for use of the kit.

53. [NEW] The kit of Claim 52, wherein the first vessel is suitable for conducting enzyme-linked immunosorbent assays therein and the microorganism is adhered to an inside surface of the vessel such that the microorganism is capable of reacting with antibodies in a solution added to the vessel.